



Reducing Lifecycle Sustainment Costs

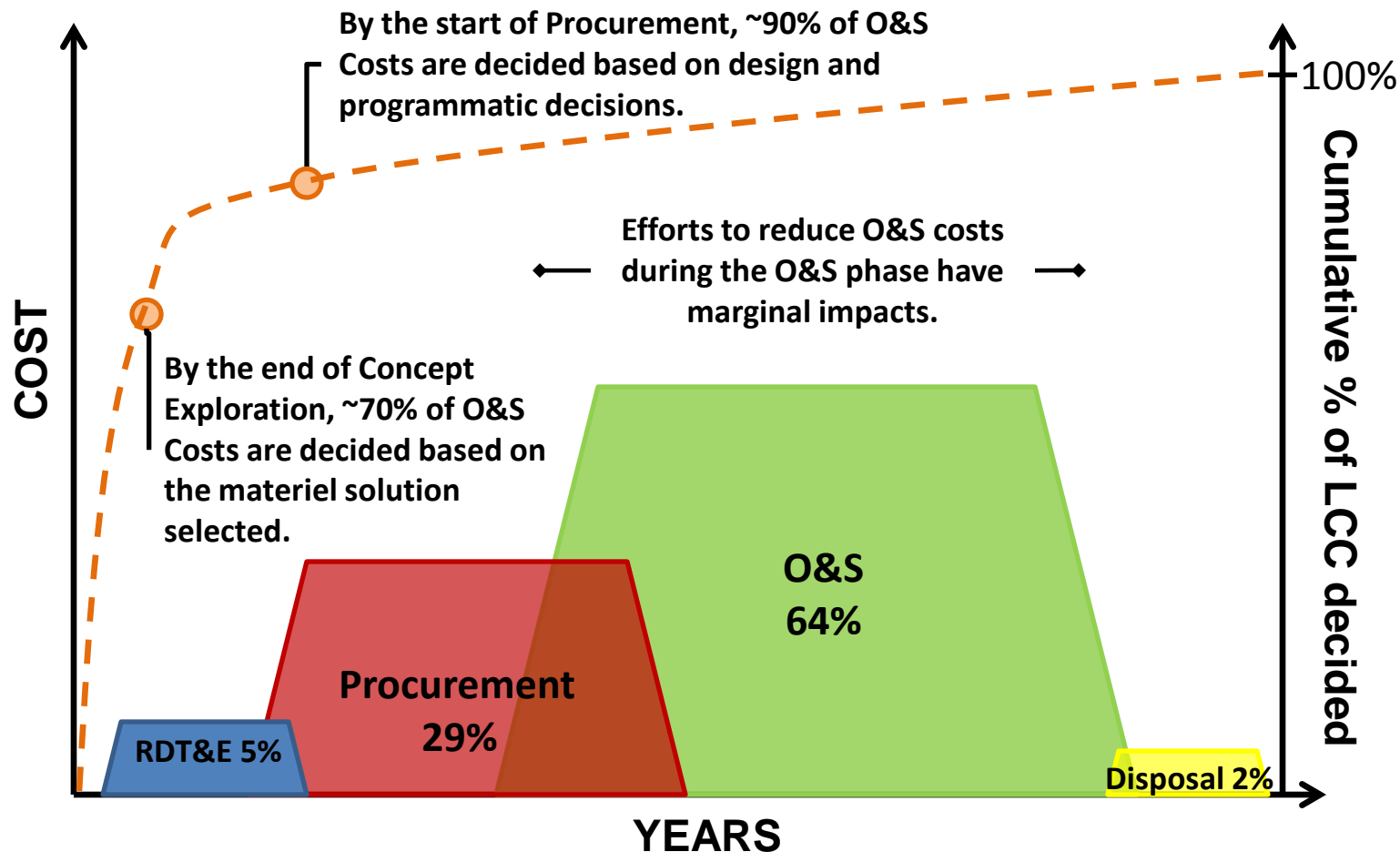
Hon David J. Berteau

**Assistant Secretary of Defense (Logistics and
Materiel Readiness)**

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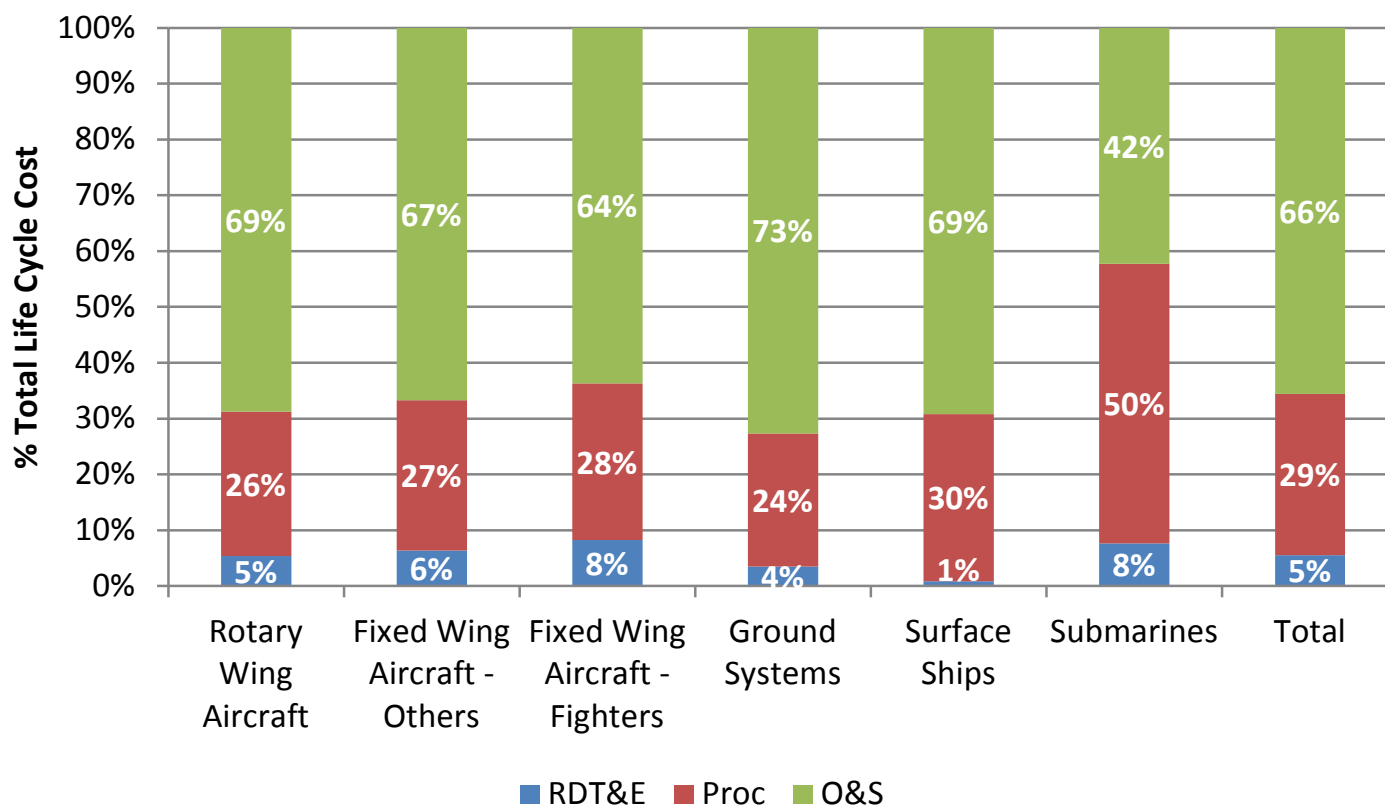
Life Cycle Costs



Optimizing the system for O&S Costs during the RDT&E phase allows the greatest ROI.



O&S Costs as a Percent of Total Life Cycle Cost



Source: OSD CAPE Analysis May 2009

O&S Costs range from 42% - 73% of total life cycle costs



External Impacts

☐ O&S Cost Estimating

- O&S cost estimates reflect “peacetime perfection”.
- Cost growth above inflation is greater than cost estimating inflation indices – a major driver in today’s costs.

☐ Reliability/Maintainability Improvements

- Reliability improvements do not always decrease O&S costs (but will always increase readiness).
- Condition Based Maintenance is required by OSD Policy, but funding is not allocated for its implementation.
- Technology Refresh often requires non-recurring engineering investment, but the Working Capital Funds can not be used to pay this expense.

Operating & Support (O&S) Cost Reduction



May 14, 2015

**Dr. Rick Burke
Deputy Director, Cost Assessment
OSD CAPE**

**12th Annual Acquisition
Research Symposium
Cost Assessment**

Agenda

OSD CAPE

- History of O&S Cost Analyses and Estimates
 - Prior to WSARA of 2009
 - Post WSARA—O&S Cost Estimates Early and Often
 - O&S Cost Estimating Guide
- It's about the Data!—O&S Cost Actuals
 - VAMOSC Systems
 - Cost and Software Data Reports (CSDRs)
 - Contractor Logistics Support Contracts
 - Includes subcontractor reporting
 - Effects of Enterprise Resource Planning (ERP) systems
 - Industry
 - Government
- Keys to Achieving O&S Cost Reduction

O&S Cost Estimating Guide

OSD CAPE

- O&S cost-estimating guide (*published March 2014*)
 - Uses of O&S cost information at milestone reviews
 - Common data and analytic methods
 - Cost Assessment review process
 - Presentation formats with sample briefing charts
- Standardized cost terms and definitions
 - Organized as a taxonomy (i.e., O&S cost element structure)

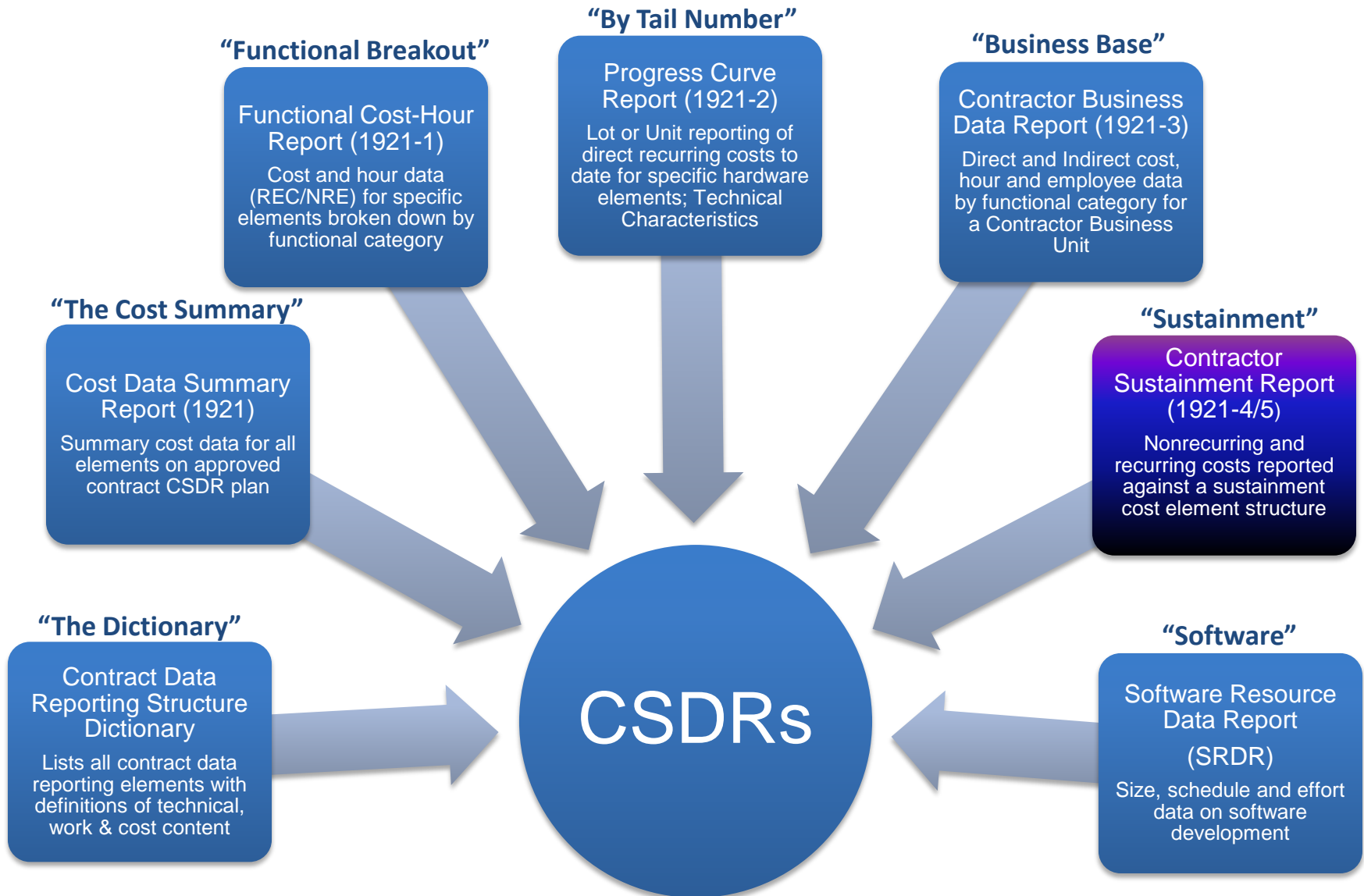
http://www.cape.osd.mil/files/OS_Guide_v9_March_2014.pdf/

O&S Cost Data: VAMOSC

- DoD 5000.04-M provides guidance for VAMOSC data systems (*At WHS for final issuance*)
 - Establishes requirement for historical data collection system that supports well-defined, standard presentation formats for all major fielded systems
 - Flexible level of detail (platform, subsystem, component)
 - CAPE provides policy and conducts oversight
 - Military departments are allowed considerable latitude in implementation
 - Army: OSMIS
 - Navy: Navy VAMOSC
 - Air Force: AFTOC
- Naval VAMOSC Study underway to ensure it is the authoritative source for Navy/Marine Corps O&S Cost Data

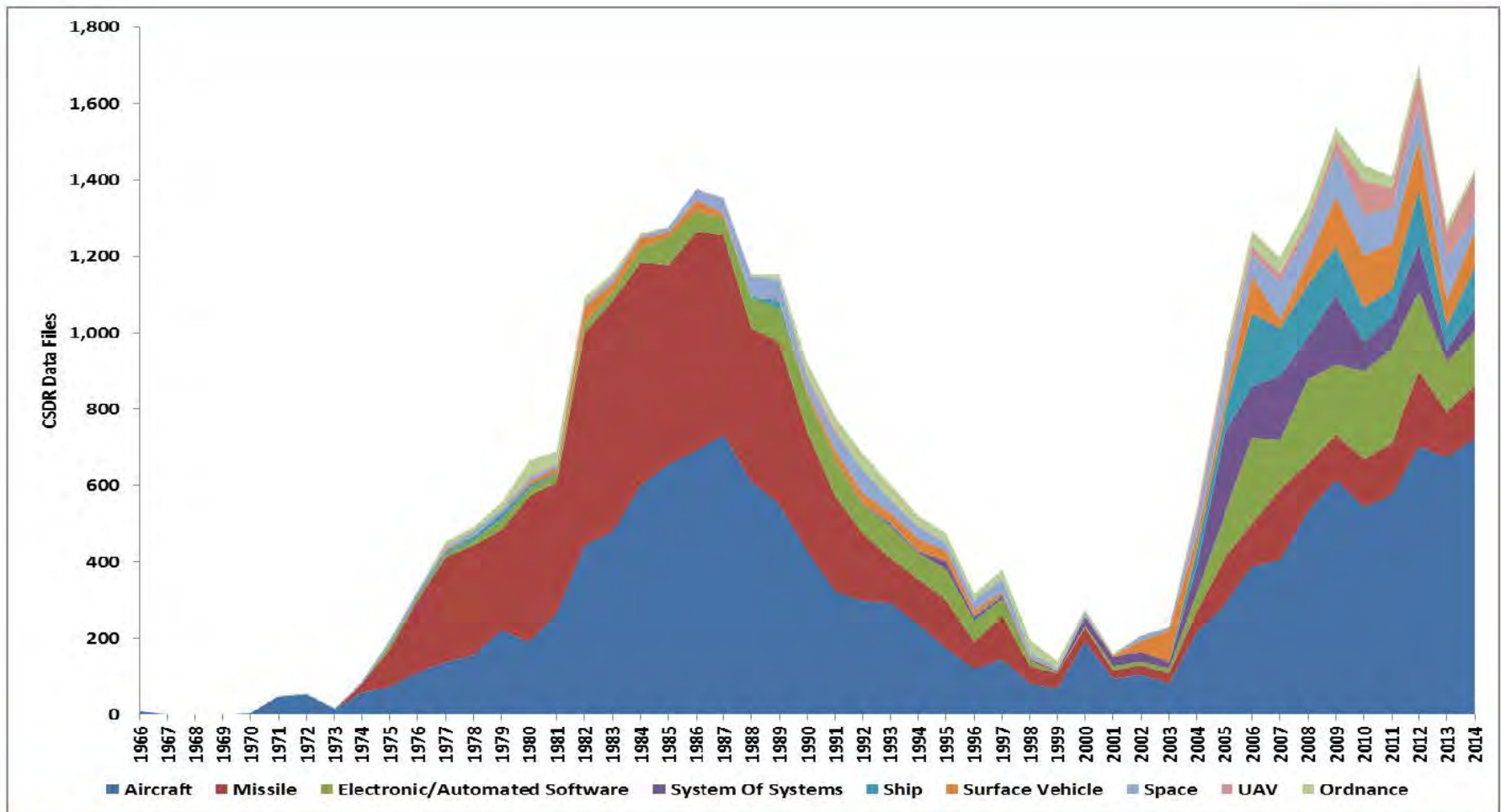
CSDR Data We Collect Today

OSD CAPE



CSDR Data Collection Over Time

OSD CAPE



Cost reporting for contractor sustainment costs is in its infancy relative to reporting of acquisition (i.e., development and procurement) cost actuals

Implications of ERP Systems

OSD CAPE

- Reporting of KTR Cost Actuals (for O&S) becomes easier
 - Modern ERP systems deployed in industry are very powerful
 - Must ‘tag’ relevant data structure early to map to desired cost reporting structure
 - Reporting requirement must be established early, included in RFP
 - Post-award KTR/USG meeting to finalize reporting plans
- Contractor submissions can be simplified in the future
 - Currently reported electronically in structured format (1921-4/5)
 - To be replaced by “flex files”—files may be large (~1 million lines)
 - New tools required to receive and manipulate large files
- Both industry and government making progress in ERPs
 - Industry data systems ahead of government systems
 - Specific O&S needs in government: depots, software centers, VAMOSC/ERP interfaces

Achieving O&S Cost Reductions

OSD CAPE

- Early O&S Cost Estimates are essential
 - Estimates in AoAs, at MS A, at MS B
 - O&S Cost Targets for MS A, Cost Caps at MS B
 - An affordability analysis and management strategy is critical
- Collect O&S Cost Actuals to Compare to Estimates
 - VAMOSC reporting for operational systems
 - Cost and Software Data Reports
 - Contractor Logistics Support Contracts—Include in RFP
 - Plans should address key subcontractors
 - Early reliability data from test program is important
- Skilled analytic workforce to identify/analyze targeted cost reductions
 - Collaboration with contracting community for success

BACKUPS



Sustainment Plans in Process

OSD CAPE

| Service | Program | Current Data Reporting Structure | O&S CES – Based Plans | Approved Plan | Subcontractor Reporting |
|-----------|----------------------------|----------------------------------|--|---------------|--------------------------|
| Army | Apache AH-64 D/E (5) | N/A | 1921 O&S Format | Yes | No |
| USAF | B-2 | 1921 O&S CES | In discussions | Not yet | TBD |
| USAF | C-5 RERP | 1921 O&S CES | Yes | Yes | No |
| USAF | C-17 | 1921 O&S CES | 2013 start | Yes | Engines waiver submitted |
| Joint | C-130J | 881A 1921 (partial) | Cited FAR Part 12 for large Navy sust contract | Yes, Partial | No |
| USAF | COOLS | 1921 O&S CES | Yes | Yes | Yes |
| Navy | F/A-18E/F | 1921 O&S CES | 2014 start | Yes | Engines |
| USAF | F-22 | 1921 O&S CES | 2014 start | Yes | Engines |
| Joint | F-35 | 1921 O&S CES | LRIP 8 start | Yes | Yes |
| Army | Fixed Wing Sustainment (2) | 1921 O&S CES | 2016 Awards | Not yet | TBD |
| USAF | Global Hawk | 1921 O&S CES | Yes | Yes | IWO subs only |
| Army | Gray Eagle PBL | 1921 O&S CES | Yes | Yes | Yes |
| Army | Javelin | 1921 O&S CES | TBD | | Yes |
| Air Force | KC-10 | TBD | Cited FAR Part 12 | No | No |
| Army | Light Utility Helicopter | Non-Standard | 2016 start | Yes | None |

- Insertion Point for sustainment requirement is either Major Contract Mod or New Contract
- Slides updated 4/13/15

Sustainment Plans in Process

OSD CAPE

| Service | Program | Current Data Reporting Structure | O&S CES – Based Plans | Approved Plan | Subcontractor Reporting |
|---------|-------------------------------------|---|--------------------------|---------------------|-------------------------|
| USMC | Medium Tactical Vehicle Replacement | 1921 O&S CES | Drafted but not Approved | Contractor Declined | No |
| USAF | Predator/Reaper | 1921 O&S CES | Yes | Yes | Yes |
| USAF | SBIRS | 1921 O&S CES | Yes | Yes | Yes |
| Army | Shadow | None – new ACAT I | Yes | Not yet | No |
| Army | Stryker | Program unique O&S, but very similar to O&S CES | No | Yes | Yes |
| Navy | T-6 | 1921-4 | Yes | Yes | No |
| Navy | T-44 | 1921-4 | Yes | Yes | No |
| Navy | T-45 | 1921-4 | Yes | Yes | Yes |
| Navy | T-45 Engines | 1921-4 | Yes | Yes | Yes |
| Joint | V-22 | 881C 1921 | New ICS awards | Yes | Yes |
| USAF | WGS OO&LS | 1921 O&S CES | Yes | Yes | Yes |
| | | | | | |

Headquarters U.S. Air Force

Integrity - Service - Excellence

Logistics and Product Support Roles and Responsibilities



U.S. AIR FORCE

Mr. Dan Fri
Deputy Assistant Secretary of the Air Force
for Logistics and Product Support
14 May 2015



U.S. AIR FORCE

Reducing Life Cycle Costs Through Sustainment Planning

- **AF committed to the total life cycle management of systems – from initial acquisition to disposal**
 - In FY12, PEOs given total life cycle management responsibility
 - PSM position mandated for ACAT I/II programs
- **Shorter acquisition reporting chain facilitates increased focus on life cycle costs**
- **Affordability is enabled by maintaining a competitive environment throughout the life cycle**
- **Requires early, deliberate sustainment planning to:**
 - **Own the Technical Baseline**
 - ❖ Delivery of appropriate data rights
 - ❖ Greater insight into contract cost drivers
 - **Structured analysis of product support strategy (e.g., BCA, should-cost assessments)**
 - **Early Depot Repair planning and standup of Core capabilities**
 - ❖ Reduce reliance on Interim Contract Support (ICS)
 - ❖ Stand up of initial Mx and Repair at DSOR Location
 - **Ensure effective use of Performance Base Logistics (PBLs)**

SAE – SAF/AQ

- Single authoritative chain from acquisition to disposal
- Alignment of responsibility, accountability and authority for sustainment

PEOs GO/SES

PMs O-6/GS-15

PSMs GS-14/15

- Single POC to advocate for sustainment equities
- Put in place at same time as PM
- Reinforces importance of sustainment

Affordability is our Top Sustainment Concern

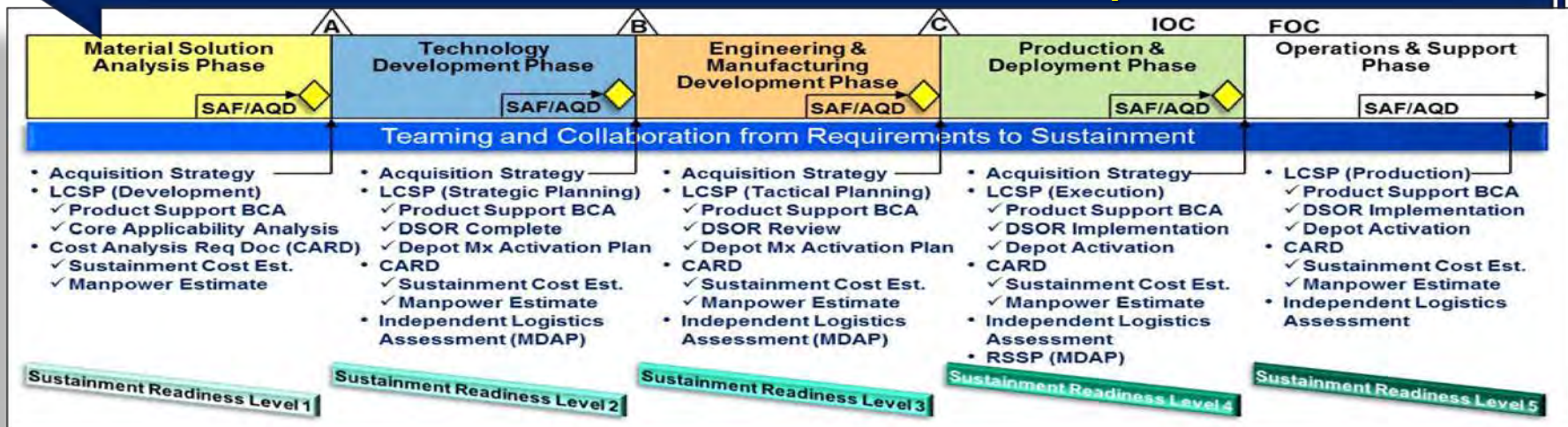


Assessing Sustainment in the Future

U.S. AIR FORCE

- Develop core tenets of sustainability to guide planning, such as:
 - Technical Data rights and delivery as contract cost competitive elements
 - No New MDS-unique Mx/SC IT Systems...focus on improving what we have
 - Standard Mx Tech Data format – for example: S1000D standard
 - Start Core workload at CITE locations early in program's lifecycle
 - Common Support Equipment & Automatic Test Systems for standard functions
- Evaluate Life Cycle Sustainment Plans for adherence to core tenets
 - Clear expectations for the program and the reviewers
- Establish Sustainment Readiness Levels (1-n)
 - Measure and report on program compliance
- Codify sustainment outcomes in Policy and enforce during reviews

Drive Sustainment Further to the Left in the Acquisition Process



REDUCING LIFECYCLE SUSTAINMENT COSTS



Mr. Scott DiLisio
Director, Strategic Mobility/Combat Logistics Division
Chief of Naval Operations

Presentation to:
12th Annual Acquisition Research Symposium
14 May 2015

LIFE CYCLE COST HISTORICAL PRINCIPLES

- **DRIVERS: COST, SCHEDULE, PERFORMANCE**
- **ESTIMATE PROGRAM COSTS**
- **INTERPRET DESIGN TRADES**
- **PROGRAM AFFORDABILITY**
- **ACQUISITION BOUNDARIES (NUNN McCURDY)**
- **USE HISTORICAL BASIS FOR COST ANALOGY**
- **ESTABLISH FORMAL ESTIMATE**
- **GAIN APPROVAL FOR PROGRAM WITHIN PROGRAM BOUNDARIES**



INSTITUTIONAL MYOPIA

LIFE CYCLE COST REVISED PRINCIPLES



- **ESTABLISH AND AGREE WITH LIFE CYCLE COST RELATIONSHIPS, MEASURE AND ASSESS BUSINESS IMPACTS**
- **SYNERGY & COMMONALITY WITH EXISTING INVENTORY**
- **CONSIDER STANDALONE VICE INTEGRATED CAPABILITY**
- **INNOVATE / REUSE / REPURPOSE**
- **BEHAVIOR / UTILIZATION**



WHY IS THIS CONVERSATION IMPORTANT?

WAVES WE ARE ON...

- FISCAL CONSTRAINTS
- BETTER BUYING POWER 3.0
- ADDITIVE MANUFACTURING
- ENERGY ISSUES
- SUSTAINABILITY CHALLENGES

OUR STAKEHOLDERS:

- THE PUBLIC
- CONGRESS
- INTERNATIONAL COMMUNITY

DOD Budget 1945-2015 in OMB Constant GDP (Chained) 2015 Dollars (Budget Authority, \$Billions)

Source: [Table 6-8](#) in National Defense Budget Estimates for FY 2014, Office of the Under Secretary of Defense (Comptroller) March 2013 & [Table 10.1](#) in Office of Management and Budget Historical Tables and [Table 28.1](#) in Analytical Perspectives for 2015.



3D Printed Parts



Hybrid Electric Drive

WE NEED TO UNLOCK AND UNLEASH INNOVATION...

TASK FORCE INNOVATION

- BUILD THE NAVAL INNOVATION NETWORK
- MANAGE THE TALENT OF THE DON WORKFORCE
- IMPROVE THE USE OF DON INFORMATION
- ACCELERATE NEW CAPABILITIES TO THE FLEET
- DEVELOP GAME-CHANGING WARFIGHTING CONCEPTS



- NAVAL INNOVATION ADVISORY COUNCIL
- ASSESSING INNOVATION IN THE WORKFORCE
- DON KEY STRATEGIC ISSUES LIST
- WARGAMING